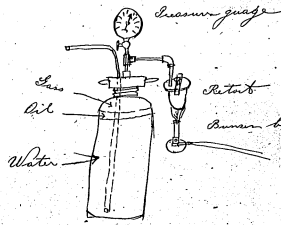
Notebook, N-89-11-07

The two dated entries in this notebook are from November 1889 and September 1891. The book was used by John Ott for notes and a drawing regarding an "Experiment on Chemical Engin[e] for Phonograph." There are also several drawings relating to lamp and transformer experiments, and one newspaper clipping on the Baldwin Locomotive Works. The spine is labeled "100." The pages are unnumbered. Approximately 30 pages have been used.

I Syrian Apparat
First in retort. Residue labeled I A.
Large quantity of product in large retort.
Boiled in open pan = I & P.
I & P Used in residue from benzolretort 1/2 of Ia.

Experiment on
Chemical Engin for
Rhinograph Nov 7. 89



Chemicals used to make pressure
then reabsorb by cooling of

Carbonate Lead

Iron

~~I dephlegmated Alcohol~~

Carbonate Iron

Salmoniac Slack Lime

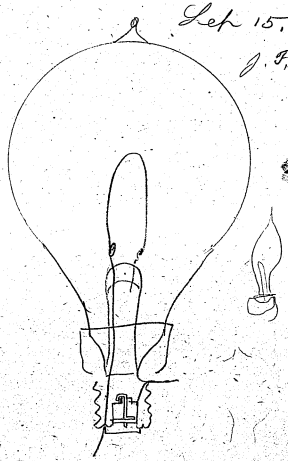
~~Sulphate~~ Potass Acedic

Cocunut Charcoal

Amonia Aqua

Sept 15. 91

J. F. O'H.



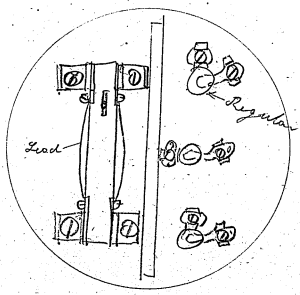
Entrant dash pot

worked by air suction

II. Pure Cuban Asphalt
Boiled in open pan and bottled cargo
Quantity (158) in Cargo Shell
I residue
1) Soluble in Naphtha
2) " in Benzol

Outfit for transformer

Sep 9.1



IV. Wood for pulp

As soluble in CaH_2O_4

Ba in $(CaH_2)_2O$

A KING OF THE RAILS.

Making the Largest Locomotives in the World.

The Baldwin Locomotive Works are about to begin work on five engines for the Erie Railroad that will be the largest ever constructed in the world. They will weigh 177,000 pounds, or eighty-eight tons, and will be used for hauling heavy freight over the mountains.

There has just been completed at the works the largest compound locomotive ever built. It is for the fast freight service of the New York, Lake Erie & Western Railroad. The Baldwin Company urged the road to try one of the compound engines, and built the engine mentioned as a sample, along with forty-four single expansion engines. The latter are now being given a careful test, as to their capabilities and economy of running. When the compound shall have had a week of ten days' breaking in a careful test will be made of its workings, in connection with those of the single expansion engines.

The ordinary engines have cylinders 20 by 26 inches. The compound engine in question has high pressure cylinders 14 by 26 inches. The big compound engine is in other respects similar to ordinary engines. It has three pairs of driving wheels, 62 inches in diameter. The weight of the engine in working order is 165,000 pounds, exclusive of the tender. The weight on the driving wheels, which is the measure of the power of the engine, is 124,000 pounds.

The boilers of all are Wooten type, and the fire boxes are 114 inches long by 96 inches wide. The engine is 56 feet long and 16 feet high. It is expected that this engine can be run at a saving of from thirty-five to forty per cent. over the ordinary single expansion engine. The Baldwin Company is now building ten engines of a similar type for the Reading Railroad, five for the Pennsylvania and two for the Lehigh Valley.

V. Rock fossil resin, southern islands,
Louis Keller, Phila.

Eg. soluble in Benzol
51% organic matter.

H. Coal tar pitch

Boiled in part

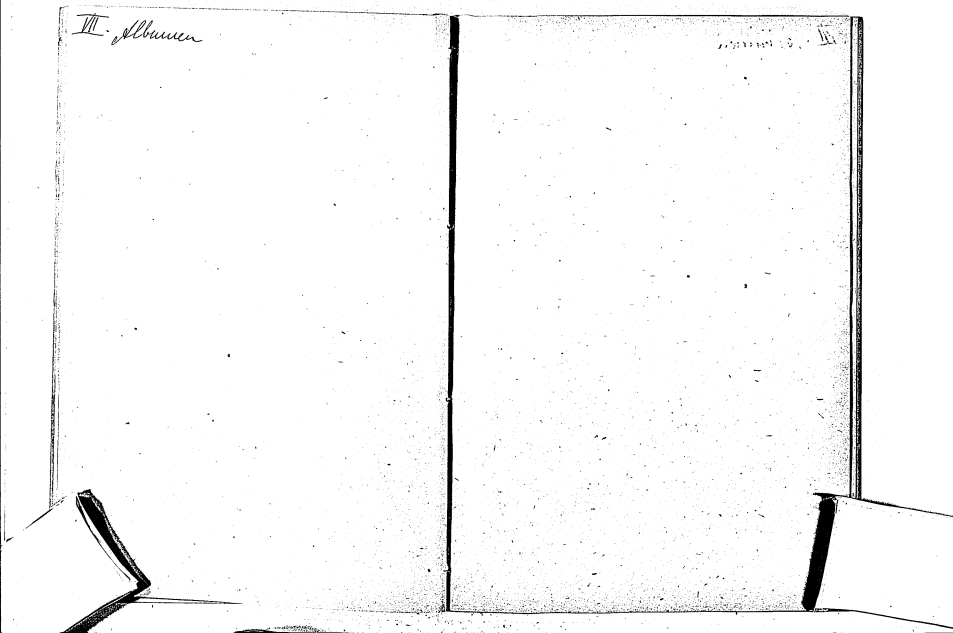
1) soluble in alcohol

2) " $(C_2^{\circ}H_5)_2O$

3) " Naphtha

4) " Benzol

5)

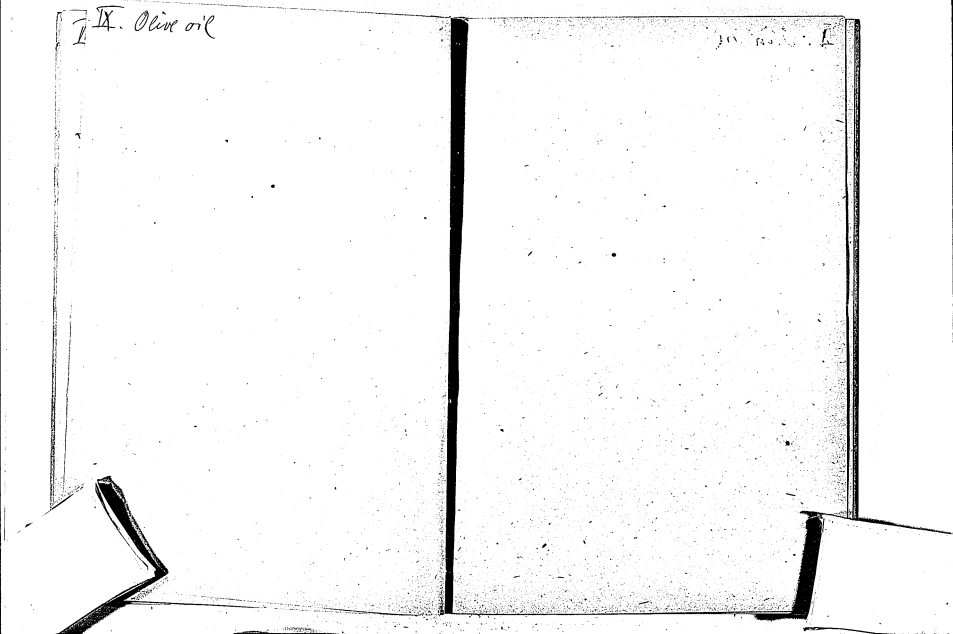


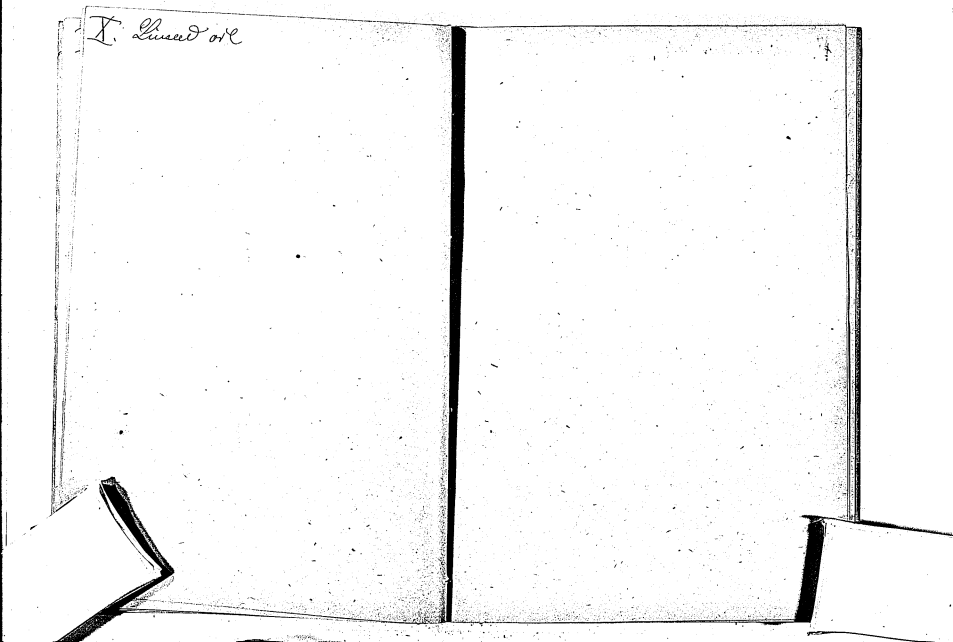
IIII. Castor oil

1.) ~~substance~~ Rest
Spongy residue, insoluble

2.) The same after melting soluble
in S_2C

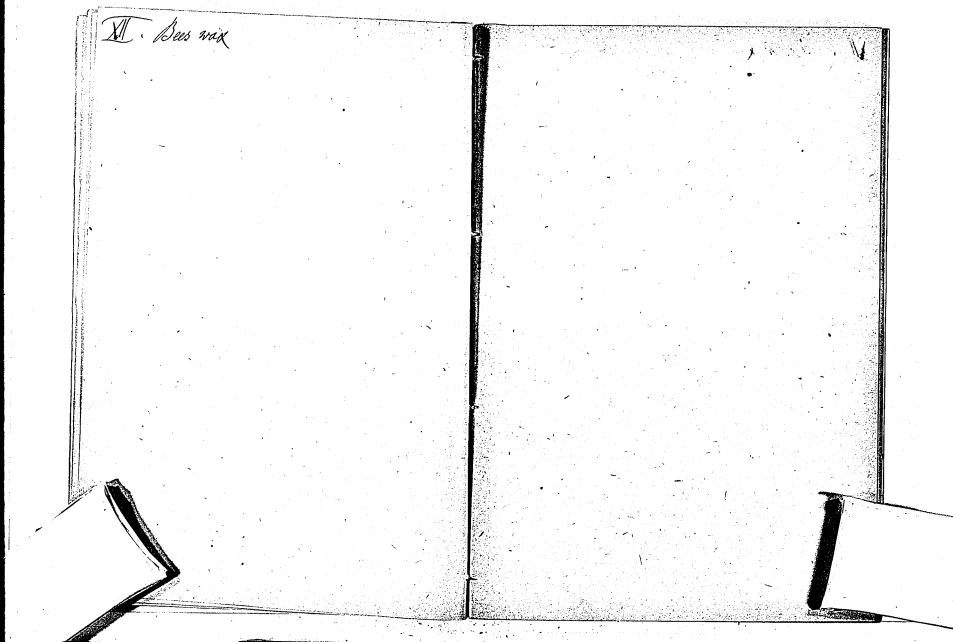
VIII A_2 / III A_1 Destillates.

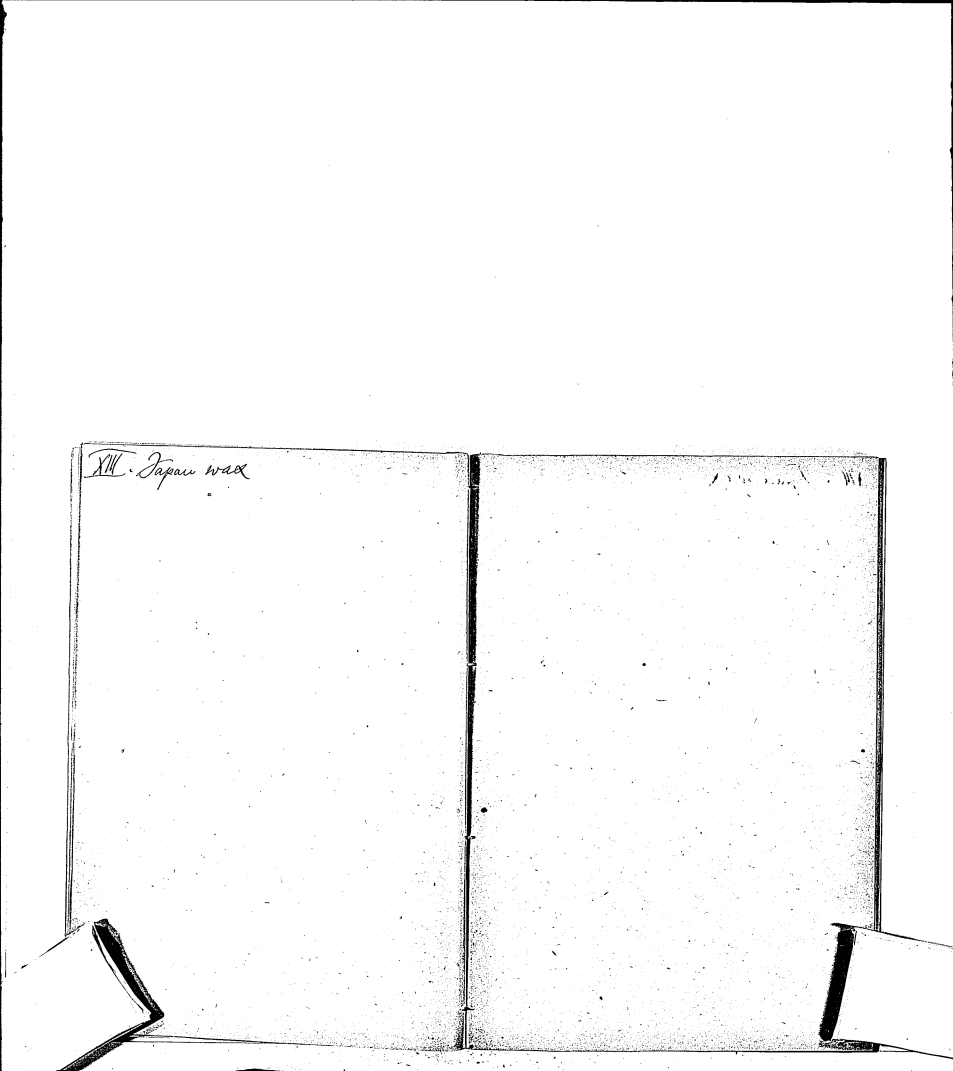

IX. Olive oil

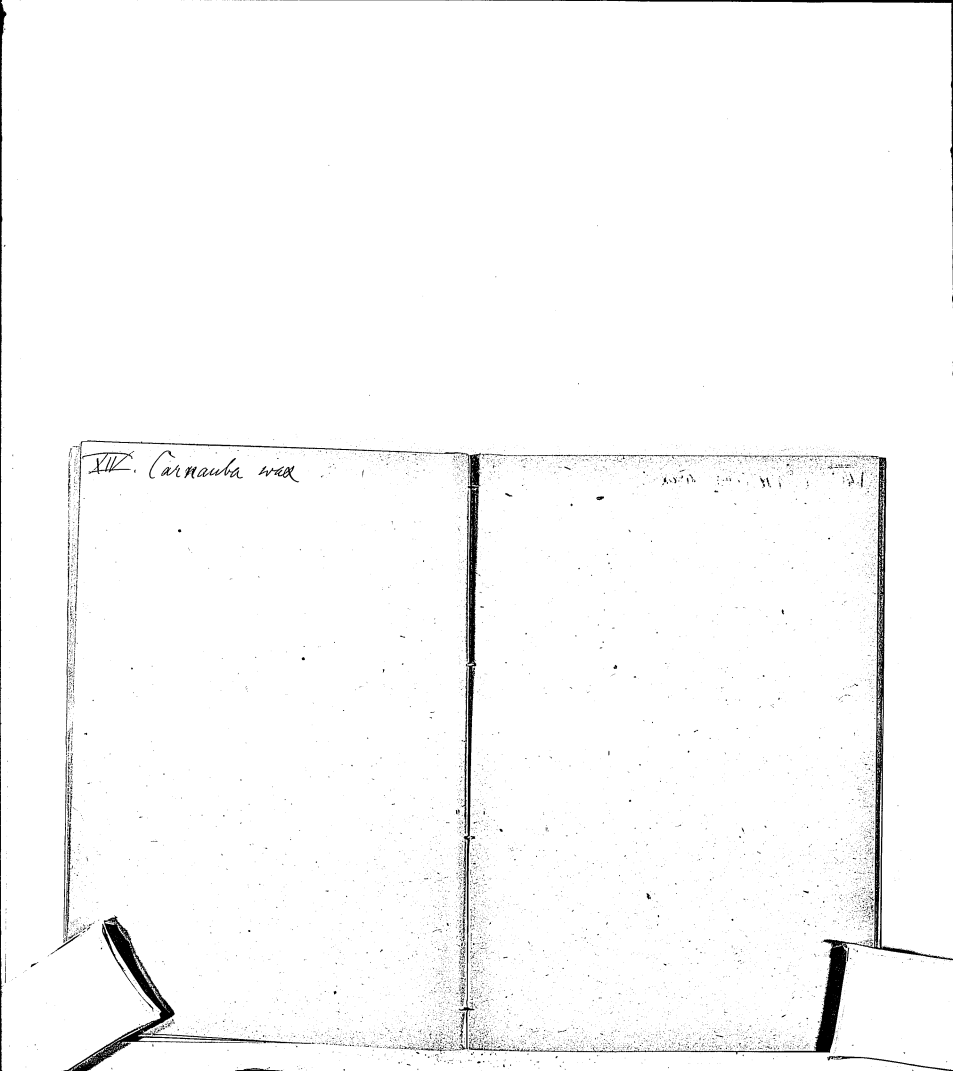

I. Linnæ ort

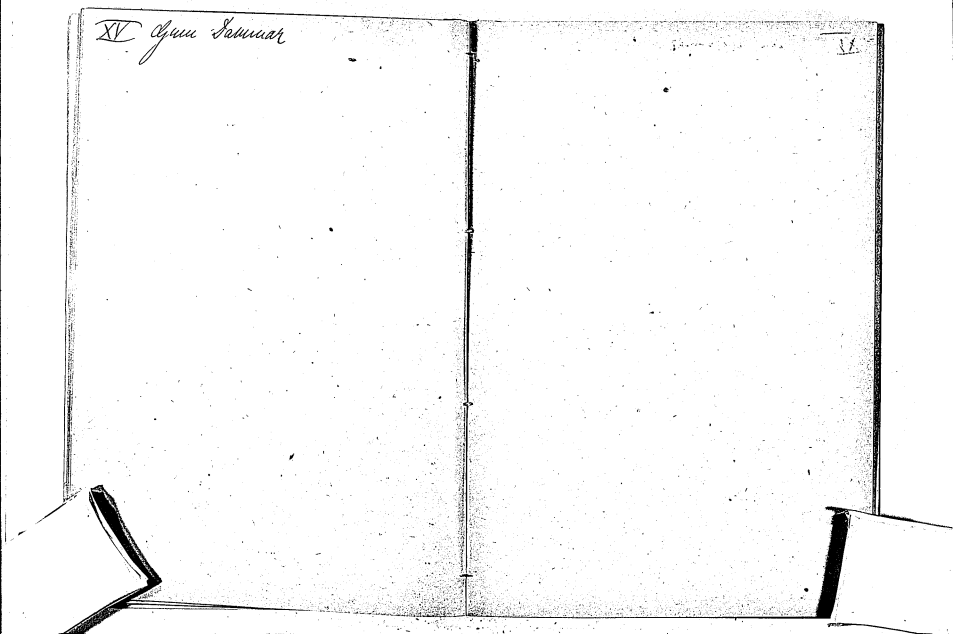
XL. Cotton seed oil.

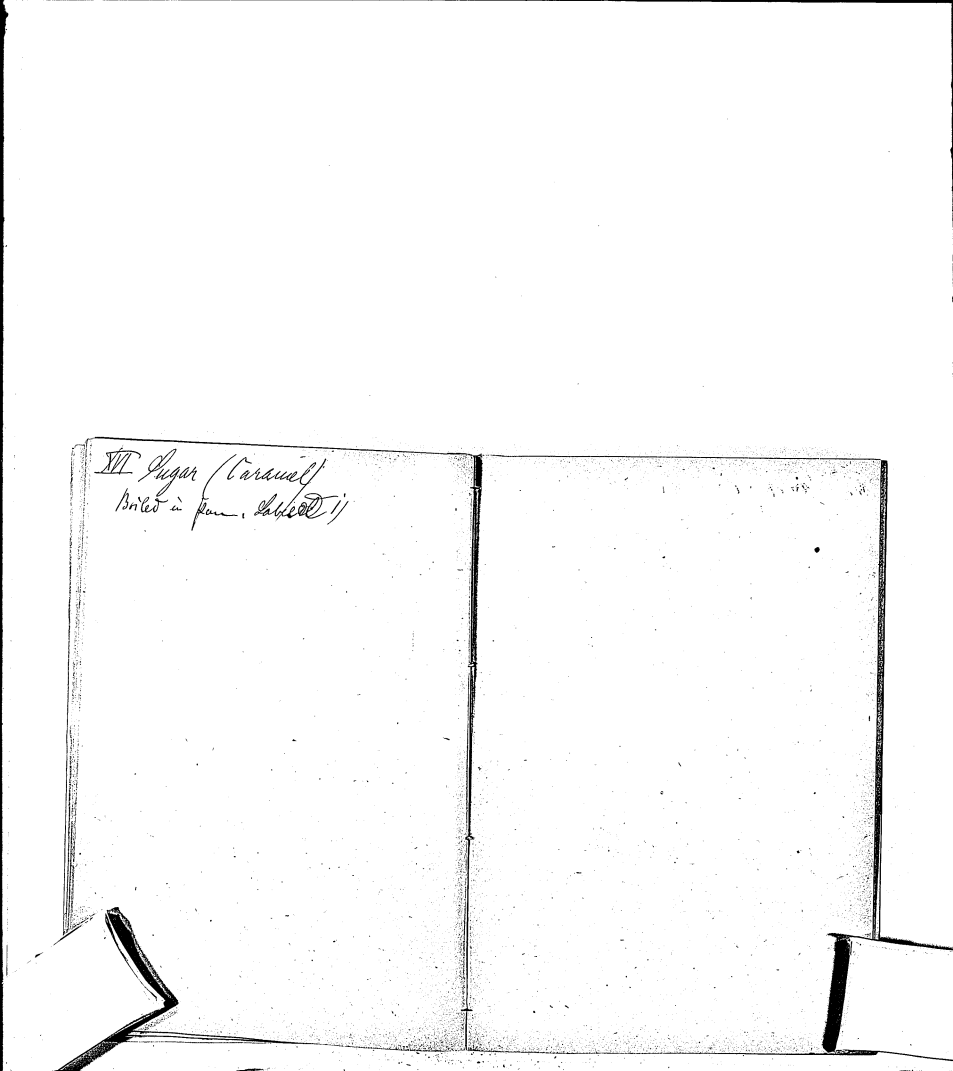
XL


XII. Deus max


XIII. Japan wax


XIV. Carnauba wax


XV


XII Sugar (caramel)
Boiled à jour. Lambert ij

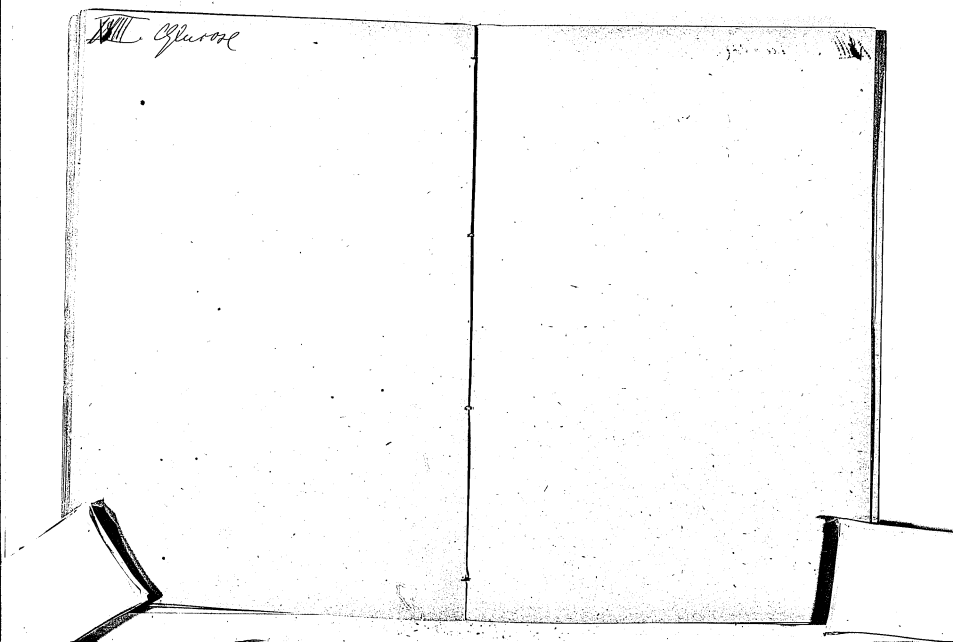
XVIII. Glycerine

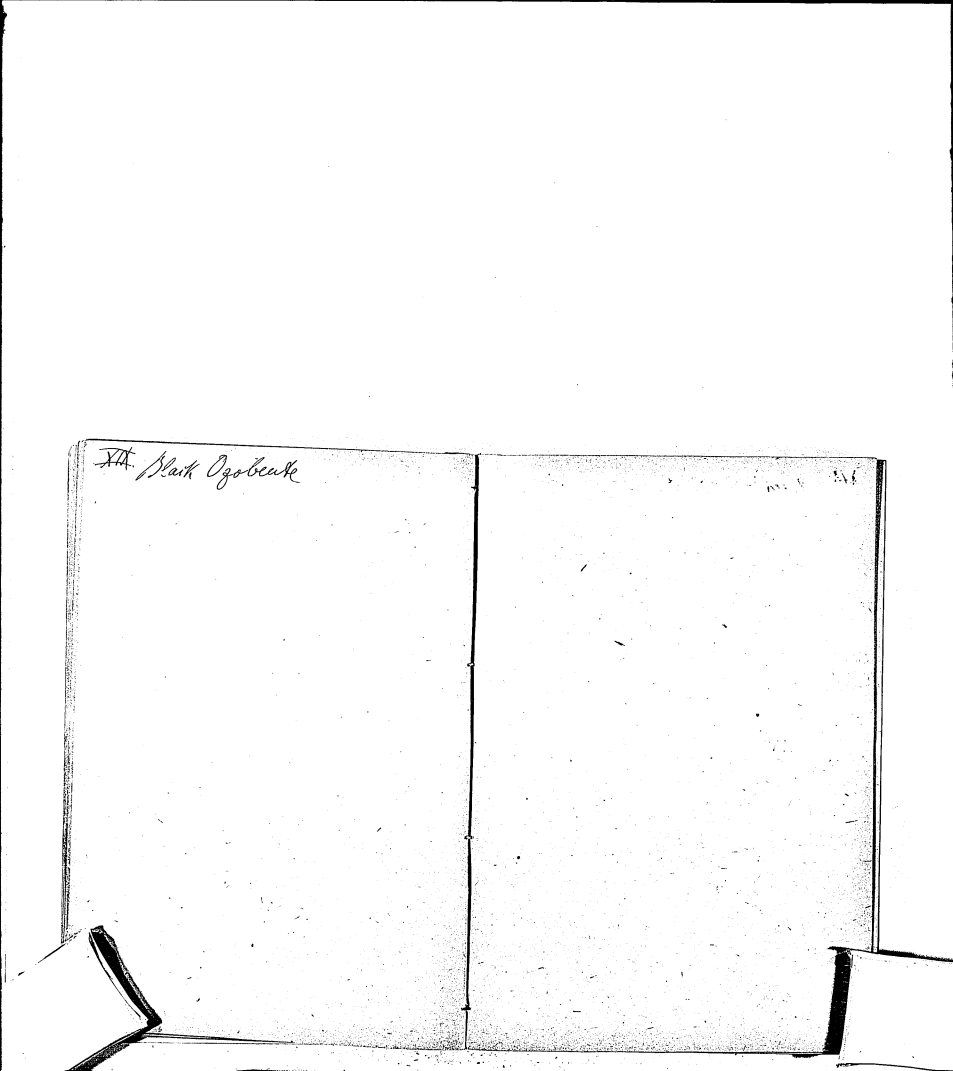
~~Bichromate~~ Flexible, tough, black residue
ca. 20% of the $C_3H_5(OH)_3$.

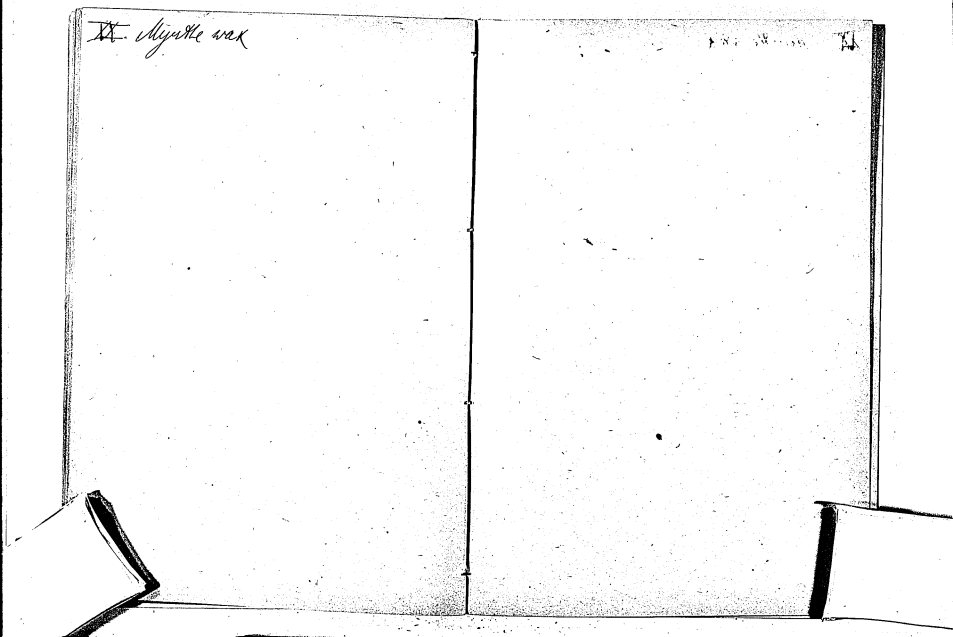
1.) Bengol (ca. 5%)
2.) CS_2 (7%)
3.) $(C_2H_5)_2O$ (15%)
4.) CH_3OH (3%)
5.) $CHCl_3$ (55%)
6.) CH_3COOH (7%)
7.) Insoluble (8%)

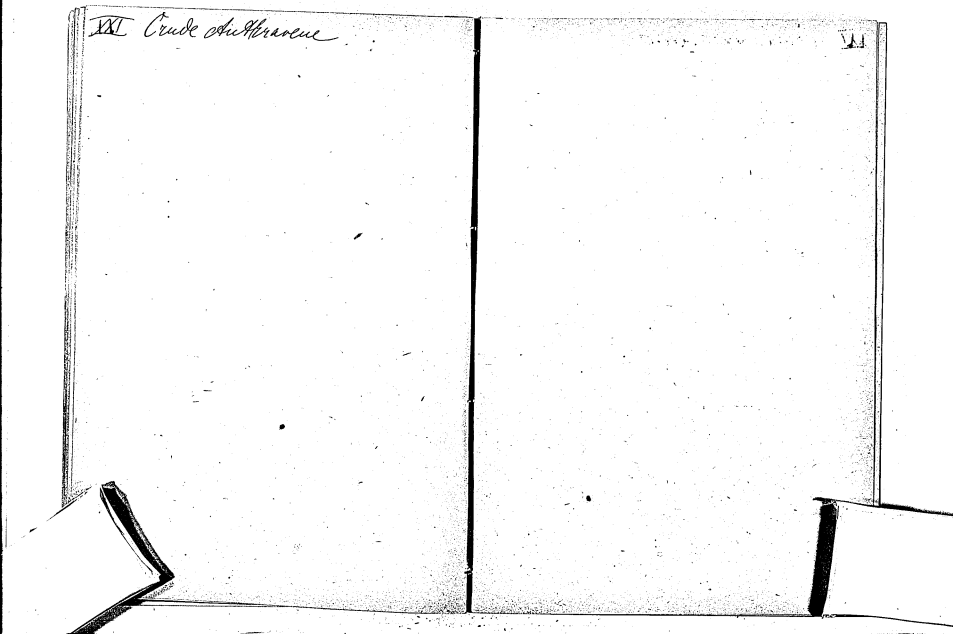
No. 5 Treated with ~~solvents~~ ~~yields~~

1.) Turpentine (oil of)
2.) Toluol
3.) strong Ammonia
4.) hydrate of potash. yields a body soluble in ammonia and alcalies insoluble in acid. most part of it being humic acid.

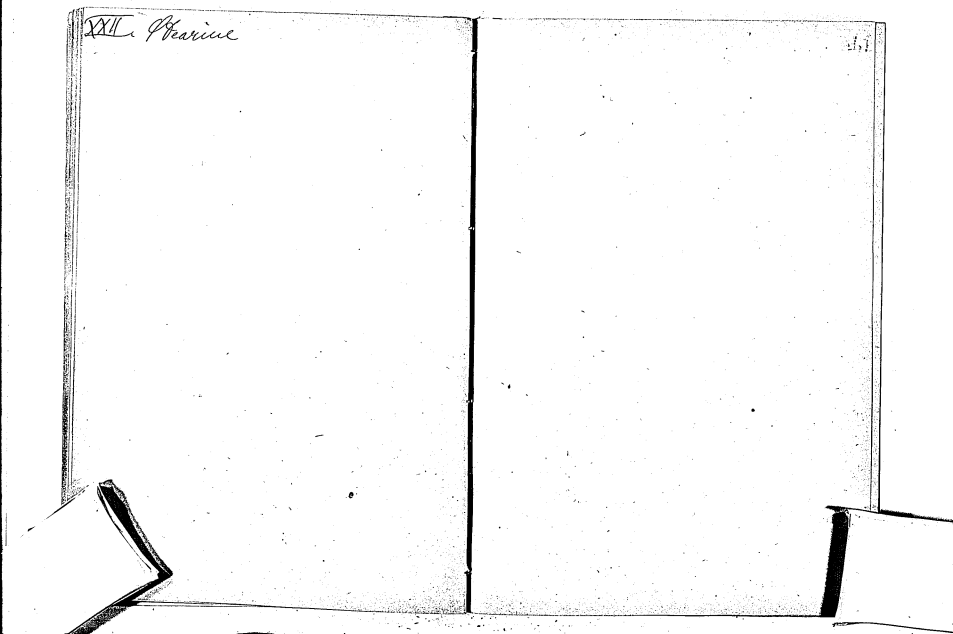



XIII. Blank Ozobeuke

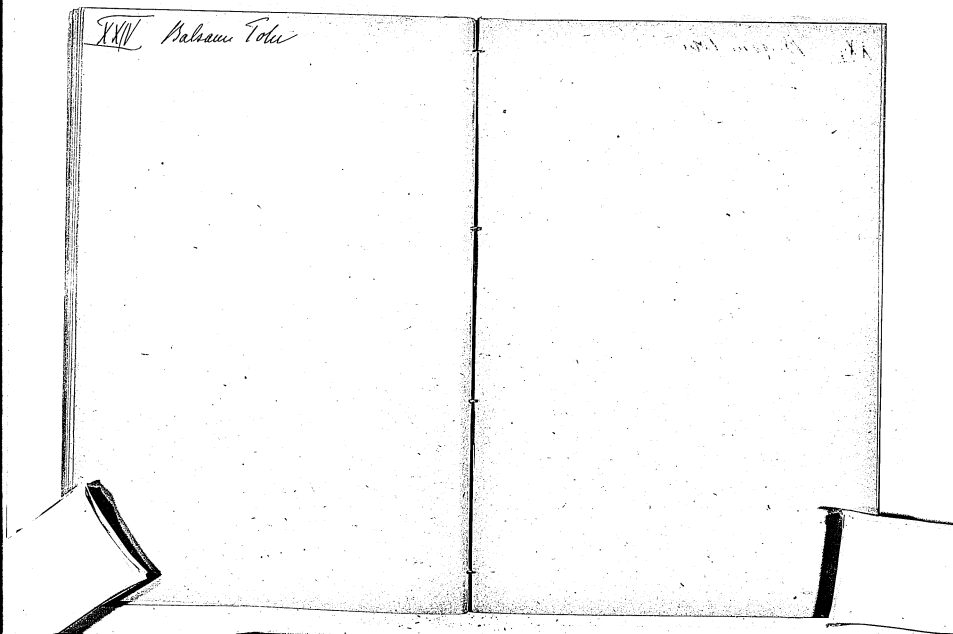

Myrtle wax


XXI Crude Anthracene

XXII. Pearine



XXIII Balsam Copaiba


XXIV Balsamo Tolu

XXV. Hard cubian Asphalt.

Boiled in pan.

Residue extracted with

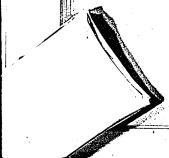
1.) Alcohol

2.) Ether

3.) Naphtha

4.) Benzol

5.)



XXVI. Humic Bodies

Humous soil (bitter peat) is extracted by weak caustic ammonia, after filtration is made a precipitate with quicklime. This precipitation contains:

$C_{54}H_{46}(NH_2)_2(COO)_6Ca_3$
$Ca_2Si_2O_3$ (and polysilicates)
$Ca_3(PO_4)_2$
$Al_2Mg_2(PO_4)_2$
$CaSO_4$

} principally leaves from $Al_2(OH)_6$ or

After decantation and filtration and ~~drying~~ washing the precipitate is decomposed by boiling with weak hydrochloric acid, sufficient to make the liquid ~~and~~ strong and neutral and filtrated. The Remainder (after good washing) is again dissolved in weak ammonia and evaporated. The solid mass is tested for ashes, and if necessary boiled with weak hydrochloric acid (after filtration) washed, dissolved again and again evaporated. The product should be $C_{54}H_{46}(NH_2)_2(COO\,NH_4)_6$ containing only traces from mineral substances.

This "ammoniacal soap of ammonia" is a black weak mass, somewhat flexible in small pieces, but to brittle for insulation purpose.

A weighted quantity of this is then boiled with just enough glycerine to perform the Ether $C_{54}H_{46}(NH_2)_2(COO\,C_3H_5)_6$ with addition of a little excess of ammonia. This Ether is performed on simple boiling the liquids and evaporating the ammonia. This gives a flexible varnish mass, burning without any flame smoky flame like hydrogen, which the more ammoniacal salt is decomposed at higher temperature without giving a remarkable flame at all.